

Targeting Environmental Neuro- Developmental Risks



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Project TENDR: Who We Are



- Environmental Health Researchers
- Health Professionals
- Government Scientists
- Children's Health Advocacy Organizations

Project TENDR: Time is Right



- Scientific evidence at a tipping point: chemicals are playing a role in neurodevelopmental disorders.
- Learning, developmental, intellectual disabilities affecting 1 in 6 children in U.S.
- Increasing prevalence of autism spectrum disorder, ADHD.

Neuro-Developmental Disorders

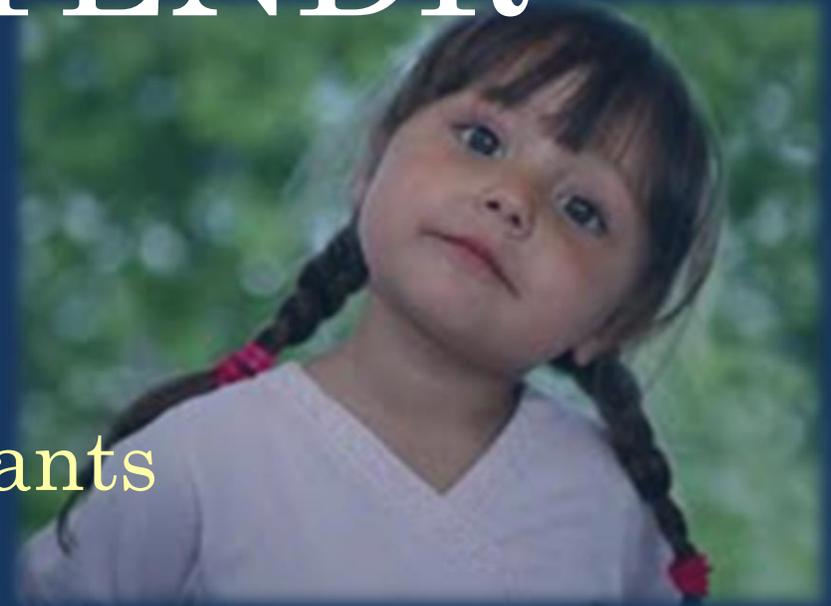
- Intellectual Disability
- Autism Spectrum Disorder
- Attention Deficits
- Hyperactivity
- Learning Disabilities
- Other Neuro-developmental conditions



Mission of Project TENDR

To reduce the exposure levels of environmental chemicals or pollutants that contribute to risks for neurodevelopmental disorders...

as a means to achieve the public health goal of lowering incidence of these conditions.



Project TENDR:

How can we achieve the goal of exposure reduction?



How can we protect our most vulnerable?

Project TENDR: Two pronged approach



- 1 Target a short list of environmental chemicals that highlight the larger problem of toxicants in the environment
 - 2 Address systemic problems in chemical regulatory policies and implementation
- Published a Consensus Statement July 1st, in *Environmental Health Perspectives*

Consensus Statement Authors:

Scientists

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Professional Organizations Endorsing or Supporting Consensus Statement

American College of Obstetricians and Gynecologists

Alliance of Nurses for Healthy Environments

American Nurses Association

Child Neurology Society

Developmental Neurotoxicology Society

Endocrine Society

International Neurotoxicology Association

International Society for Children's Health and the Environment

International Society for Environmental Epidemiology

National Association of Pediatric Nurse Practitioners

National Council of Asian Pacific Islander Physicians

National Hispanic Medical Association

National Medical Association

Physicians for Social Responsibility

Project TENDR:

A short list: chemicals increasing children's risks for neurodevelopmental disorders

- Lead
- Organophosphate pesticides
- Polybrominated diphenyl ethers (flame retardants)
- Air pollution
- Phthalates (emerging concern)

*Scientific evidence of harm.
Exposure widespread.
Reduction of levels is feasible.*



Project TENDR:

Lead

- Exposure by ingestion or inhalation:
 - Peeling paint in older houses
 - Lead water pipes
 - Lead battery recycling
 - Aviation gas, cosmetics, bullets, etc.
- There is no safe level of lead for children.
- Over 150 years documenting effects including loss of IQ, developmental delays, ADHD, learning disabilities.



Project TENDR: Recommendations on Lead



Overarching Goal: No child has blood lead level > 1 ug/dL (10 ppb) by 2030.

- Update standards and action levels for lead based on most recent science to establish the strongest protections for children.
- Identify, remediate, eliminate sources of lead in air, dust, soil and products to prevent exposure.

Project TENDR:

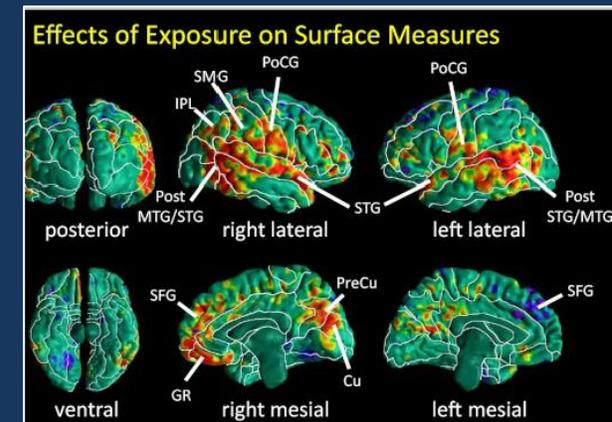
Polybrominated diphenyl ethers (Flame Retardants)



- Exposure from dust contaminated with PBDEs from:
 - Upholstered Furniture
 - Electronics
 - Kid's products, i.e. nap mats, nursing pillows, car seats
 - Fabrics
- Associations with cognitive impairment (loss of IQ), ADHD symptoms. PBDEs disrupt the endocrine system.
- Opportunities for exposure reduction through replacing old furniture, wet mopping, vacuuming, washing hands.

Project TENDR: Organophosphate Pesticides

- Exposure through:
 - Household pest control
 - Occupations in agriculture
 - Residues on foods
 - Drift from agricultural applications
- Associations with cognitive impairments (decreased IQ), autism, & symptoms of ADHD
- Changes in brain function found on MRI
- Opportunities for exposure reduction through non-toxic alternatives, organic farming, washing fruit with no peel



Project TENDR: Air Pollution



- Widespread exposure, largely due to motor vehicle traffic
- Literature shows deficits in cognitive skills
- Supported by animal experiments
- Opportunities for exposure reduction:
 - Public transportation
 - More bicycle and pedestrian-friendly city planning
 - Technologic advances – hybrids, all-electric vehicles

Project TENDR: Phthalates



- **Exposure through:**
 - Food contaminated during processing & packaging.
 - Personal care products, “Fragrance” “Parfum”
 - Vinyl flooring
 - Children’s toys and other products.
- **Emerging concerns: ADHD behaviors, IQ loss, autism.**
- **Opportunities for exposure reduction:**
 - phthalate-free products;
 - buy less processed and packaged food;
 - bans on use of phthalates in food processing.



Project TENDR: Systemic change



Overhaul systems for chemical regulation:

- Special vulnerabilities of developing fetus and children
- Act before children are harmed
- Speed the process, regulate groups of chemicals
- End the cycle of replacing one toxic chemical with another. (Regrettable substitution)

Project TENDR: Dissemination



- New York Times exclusive feature story
- CNN online story
- Over 20 radio interviews, 6 NPR affiliate station stories
- ~300 outlets reported on press release
- Congressional briefing attended by 60 House, Senate, and agency staffers
- Scientific, medical journal articles: JAMA article Oct. 2016

Project TENDR: Next Steps....

Chemical-Specific Recommendations

Establish New Process for identifying
chemicals toxic to brain development

Collaboration with Policymakers and
Partners

Provide Expertise and Influence

Endorsements and Outreach

Going Global?



Project TENDR:

Engage at all levels

- Law-makers
- Regulators
- Manufacturers, Distributors, Retailers
- Health professionals
- Consumers, parents-to-be, broad public



Project TENDR

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IN THE MEDIA



TENDR on KQED Forum July 7, 2016 Listen to episode

JULY 7, 2016

Project TENDR: Funding



- John Merck Fund
- Passport Foundation
- Ceres Trust
- NIEHS